WIGLAF-A Web Interface Generator and Legacy Application Façade

PI: Dr. Gerhard Klimeck, JPL

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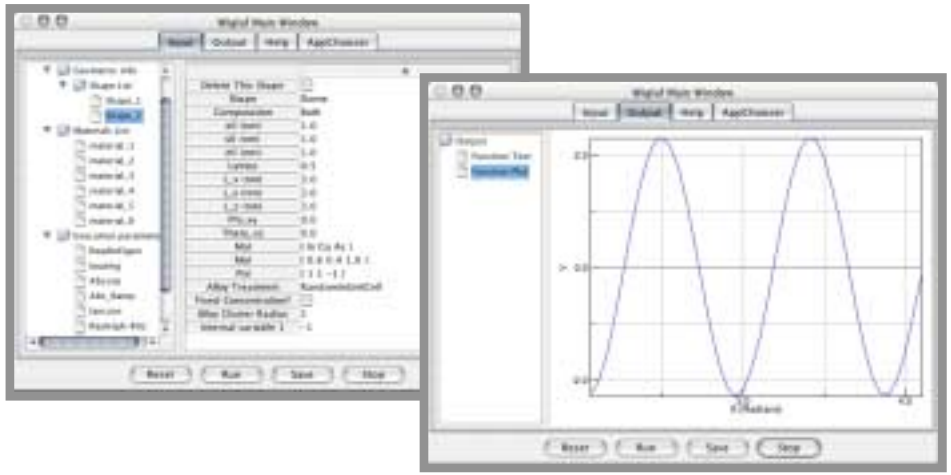
Objective

- Enable efficient use of clusters through a Graphical User Interface (GUI). Address pressing issues of application users and developers.
- Enable user-friendly:
  - Remote, web-based operation.
  - Scientific problem set-up.
  - Data management.
- Developer-friendly:
  - Speed-up of integration of legacy software.
  - Handling of application specific environments.



Approach

- Use state-of-the-art web tool technology
- Hold data and data structures in XML files
  - Enable processing of legacy data files
  - Hierarchical, user friendly ordering of data
  - Flexible data management
- Java code for XML described GUI rendering
- Provide handling of input, output, and software control.
- No code modifications to the original application should be required to use WIGLAF.

Key Milestones

• Basic Java version	6/02
• Improved Java Version	11/02
• ROIPAC application implemented in WIGLAF I	12/02
• Portal developed	2/03
• Import Wizard developed	10/03
• Science apps implemented in portal	11/03
• Distribute source code via OpenChannel Foundation	3/04

TRL_{in} =3

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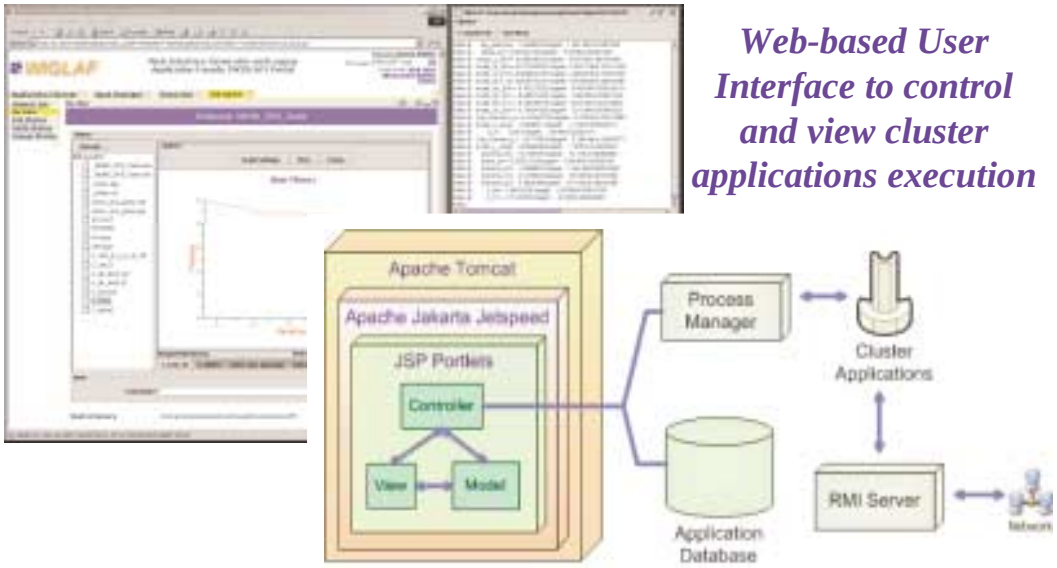

Web-based User Interface to control and view cluster applications execution

Accomplishments

- Developed a framework that dynamically generates GUI (graphical user interface) front ends to legacy applications using Schema documents. This hides the complexity of managing parallel processing applications on cluster computers, and allows non-experts to use clusters from their desktops. The framework:
  - Provides multi-user & multi-application support for running cluster applications
  - Enables real-time monitoring of application output (including graphical representations of data) via the web
  - Improves ease-of-use and management of complex legacy applications.
- Demonstrated integration of significantly different applications into WIGLAF
  Synthetic Aperture Radar data processing software.
  Genetic Algorithm optimization package PGA Pack.

Impact

Allows rapid development of user interfaces to legacy code

Allows non-experts to use clusters for science without the steep learning curve

TRL_{in} =3; TRL_{out}=5